# THE POTENTIAL FOR THIRD - PARTY MAINTENANCE

## ON IBM 4300 SYSTEMS

## PHASE 1

# THE POTENTIAL FOR THIRD-PARTY
# MAINTENANCE ON IBM 4300 SYSTEMS
# PHASE I

Prepared For:

RAYTHEON SERVICES COMPANY

AUGUST 1980

INPUT

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PHASE I

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# THE POTENTIAL FOR THIRD-PARTY
# MAINTENANCE ON IBM 4300 SYSTEMS
## PHASE I

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I INTRODUCTION

# I INTRODUCTION

- This study of user receptivity to third-party maintenance on IBM 4300 systems was commissioned by Raytheon Service Company and conducted by INPUT. It is phase I of a potentially multi-phased study.

- The main thrust of this study is built on a series of telephone interviews of users who recently installed 4300 systems. The questionnaire was designed by INPUT based on a proposal dated July 2; the proposal described issues identified by Raytheon as being important to the subject. The questionnaire was approved by Raytheon and the interviews were carried out by INPUT between July 30 and August 8, 1980.

- When possible, INPUT interviewed larger sites in major metropolitan areas. However, many installed 4300s are in smaller sites in less populated areas and this is reflected in the interview profile.

| Site Number | Location (Area) | Industry Description |
|---|---|---|
| 1 | New Jersey | Auto Distribution |
| 2 | Chicago | Medium-Sized Bank |
| 3 | Small Town In Illinois | Part Of A Very Large Manufacturer |
| 4 | Buffalo, NY | Division Of A Steel Manufacturer |
| 5 | Dallas, TX | Small Bank |

| | | |
|---|---|---|
| 6 | Los Angeles | Subsidiary Of A Large Manufacturer |
| 7 | Small Town In Texas | Small Bank |
| 8 | Small Town In California | Regional Center For An Insurance Company |
| 9 | Dallas | Small Insurance Company (Part Of Holding Company) |
| 10 | Los Angeles | Small Apparel Manufacturer |
| 11 | Houston | Small Steel Company |
| 12 | St. Louis | Subsidiary Of A Large Bank |
| 13 | Los Angeles | Small Bank |
| 14 | Denver | Small Insurance Company |
| 15 | Houston | Oil Drilling Company |
| 16 | Los Angeles | Manufacturer - Division Of Large Company |
| 17 | San Francisco | Small Manufacturer |
| 18 | Dallas | Part of A Large Manufacturer |
| 19 | San Francisco | Consulting Engineer |
| 20 | Houston | Manufacturer |

- In the designing of the study, Raytheon decided that it should cover a broad range of issues over a smaller interview sample, rather than probe among a wider sample of users with a narrower set of issues. The deeper probing can be accomplished in a Phase II.

- The raw data is presented in detail, with the knowledge that more interviewing is needed before more precise conclusions can be drawn.

    - Recommendations are included in the executive summary (Section II).

- A more detailed report is envisioned following more extensive research, should a Phase II be authorized.

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II EXECUTIVE SUMMARY

## II EXECUTIVE SUMMARY

## A. OVERALL CONCLUSIONS RELATIVE TO THIRD-PARTY MAINTENANCE ON 4300s

- The profit potential in marketing third-party maintenance to IBM 4300 users centers on several factors:

    - The large population of 4300s - estimated by INPUT to be 11,000 currently installed and on order.

    - The impact which this will have on the IBM 360/370 population, some of which is currently being maintained by third-party organizations.

    - The relatively low hardware maintenance charge for the 4300 series compared to 360/370s. The annual maintenance charge for 4300s is 2-3% of the purchase price, compared to approximately double that amount for 370s. If the current market price of used 370s is considered as a base, the IBM annual maintenance is 20% of the purchase price for used 370s.

    - Software maintenance becomes a major revenue generater for IBM with the 4300 series (and, potentially, for a third-party maintenance vendor).

-       The 4300 series requires less maintenance than its predecessor series; this factor is verified in the user interviews carried out in this study.

●       To put the potential market size in perspective: 11,000 4300 systems at an average annual hardware maintenance charge of $4,000 per year yield hardware maintenance revenues of $44 million in the U.S.

-       Software maintenace revenues may now be equal, and potentially will be much larger.

-       A vendor approaching this market would have to target a share within these potential figures for hardware and software maintenance. A 10% share of the total hardware and software market to maintain 4300s in the U.S. in 1983 would approximate $10 million (based on a total market estimate of $100 million).

●       Users interviewed in this phase of the study voiced medium to high satisfaction with IBM maintenance on 4300 systems. Potential attack points for a third-party vendor are the following, which some users stated were IBM weaknesses:

-       IBM has not succeeded fully in training their FE force on the 4300.

-       Remote sites, compared to central sites, are not as well covered.

-       System support centers and remote software support get mixed reviews.

-       Some users miss the preventive maintenance process and the close tie to an individual FE which was part of the 360/370 environment. However, the use of on-site FEs was found to be of little or no importance among 19 of the 20 users surveyed.

- The profit potential in third-party maintenance centers on the vendor's ability to capture a significant share of the market early in its product life, because participation will require investment in technique (different from traditional 360/370 techniques) and early activity is essential to obtain a return on this investment.

    - Cost savings will not be a driving force because maintenance costs are already low and user concern is minimal.

    - The opportunity lies in anticipating the shift in the total market which the 4300 represents and capitalizing on that shift.

## B.    RECOMMENDATIONS

- Before committing funds for a third-party maintenance program on IBM 4300s, Raytheon should thoroughly study and understand the potential revenue stream between hardware and software maintenance.

- Raytheon should consider marketing strategies which recognize that 4300s are being used in applications-specific rather than general purpose, environments.

    - Consider targetting certain industry areas, i.e. banking, where industry knowledge could provide a competitive edge, particularly in software maintenance.

    - Consider tying in other Raytheon products, particularly terminals, minis and word processing equipment in applications-specific market segments.

- Exploit the fact that IBM has three maintenance organizations and often is vulnerable to a single, unified vendor.

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- Raytheon could target to take over certain multi-location applications.

- Raytheon could provide the image of a coordinated, targeted 4300 maintenance vendor, similar to the approach TRW is now promoting relative to Hazeltine terminals.

● The recognized unmet need at the user level is for people trained in 4300 maintenance. Raytheon must consider how many people would be required, how they would be dispersed (in the field or centralized in centers), and whether they would handle software as well hardware.

● Any of the above recommendations requires an investment of management time and money. After a review of this report, Raytheon and INPUT should consider a structuring of a Phase II which would address the desirability and direction of that investment.

INPL

III IBM 4300 MARKET STRUCTURE

# III    IBM 4300 MARKET STRUCTURE

• An overview of the U.S. 4300 market is provided below. Sources are INPUT analyses, Computer Intelligence Corporation data and published information.

   - The number of systems installed and on order by model number as estimated by INPUT are:

| Model Number | Installed | | On Order | | Total |
|---|---|---|---|---|---|
| | Units | Percent | Units | Percent | Units |
| 4331 (Include 4331-2) | 2,000 | 40% | 3,000 | 60% | 5,000 |
| 4341 | 400 | 7% | 5,600 | 93% | 6,000 |
| TOTAL | 2,400 | | 8,600 | | 11,000 |

   - Of 20 sites interviewed, nineteen had one 4300 system. The twentieth site had a 4331 installed and a 4341 on order; several others had a second 4300 on order, but were uncertain about ever installing it. The dominant population is at single 4300 sites. Of course, many sites also had other non-4300 systems installed. A listing of sites is available at client request.

   - The breakdown of acquisition method is shown on Exhibit III-1. Lease third-party may be overstated somewhat: several respondents who had identified themselves as having a third-party lease were found to have IBM leases when they were interviewed by INPUT.

EXHIBIT III-1

## ACQUISITION METHOD OF IBM 4300 SYSTEMS
### (PERCENT OF TOTAL)

| | INSTALLED | | ON ORDER | |
|---|---|---|---|---|
| ACQUISITION METHOD | 4331 | 4341 | 4331 | 4341 |
| PURCHASE | 15% | 15% | 10% | 11% |
| LEASE-THIRD-PARTY | 8 | 9 | 8 | 8 |
| RENT | 16 | 12 | 12 | 8 |
| EXTENDED RENT | 39 | 38 | 30 | 29 |
| NOT SPECIFIED | 22 | 26 | 40 | 44 |
| TOTAL | 100% | 100% | 100% | 100% |

SOURCE: COMPUTER INTELLIGENCE CORPORATION

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• The high estimates of IBM 4300 order levels, which were quoted by some sources soon after the system was announced in January 1979, have been lowered significantly. Some original estimates placed the on-order level at 25,000-50,000 units worldwide. The lower INPUT estimate given above is a result of:

- A review of order/installation data provided by users.

- A recognition that installation schedules are "slipping." Of the 39 users called for this study, who earlier had estimated that they would have 4300s installed by now, 12 still had not installed the system.

- A removal of non-U.S. units from the estimate - estimated to be 50% of the worldwide total.

- A removal of speculative and duplicate orders from the estimate.

- A realistic look at how many systems are currently installed in the U.S. which logically can be replaced by 4300s. Populations of the most logically replaced CPUs now installed in the U.S. are:

|  | Estimated 1980 Population |
|---|---|
| IBM 370/115 | 800 |
| 125 | 800 |
| 135 | 900 |
| 138 | 1,500 |
| 145 | 900 |
| 148 | 1,200 |
| 360/30 | 2,000 |
| 360/40 | 1,000 |
| Total | 9,100 Systems |

• The systems being replaced by 4300s are shown on Exhibit III-2.

- Fifty-eight percent of the 4331s are replacing the mainframes listed above.

## EXHIBIT III-2

## IBM 4300 MIGRATION ANALYSES - SYSTEMS
## BEING REPLACED BY INCOMING IBM 4300 SYSTEMS

| SYSTEM BEING REPLACED | INCOMING SYSTEMS (PERCENT OF TOTAL) | | | |
| --- | --- | --- | --- | --- |
| | IBM 4331 | | IBM 4341 | |
| | NUMBER | PERCENT | NUMBER | PERCENT |
| ADDITIONAL (NEW SITE) | 143 | 18% | 242 | 18% |
| BURROUGHS | 5 | 1 | 3 | – |
| CDC | – | – | 6 | 1 |
| MISCELLANEOUS RJES | 24 | 3 | 9 | 1 |
| HONEYWELL | 16 | 2 | 4 | – |
| NCR | 5 | – | 2 | – |
| UNIVAC | 11 | 1 | 2 | – |
| HEWLETT-PACKARD | 1 | – | – | – |
| SYSTEM 7/32/34/38 | 9 | 1 | 9 | 1 |
| SYSTEM 3 | 65 | 8 | 9 | 1 |
| IBM 1130,1401 | 5 | 1 | – | – |
| 360/20/22 | 8 | 1 | – | – |
| 360/30 | 53 | 7 | 4 | – |
| 360/40 | 72 | 9 | 15 | 1 |
| 360/50 | 29 | 4 | 26 | 2 |
| 360/65/75 | 3 | – | 27 | 2 |
| 370/115 | 108 | 14 | 9 | 1 |
| 370/125 | 89 | 11 | 57 | 4 |
| 370/135 | 46 | 6 | 108 | 8 |
| 370/138 | 63 | 8 | 318 | 24 |
| 370/145 | 18 | 2 | 167 | 12 |
| 370/148 | 9 | 1 | 190 | 14 |
| 370/155 | 6 | 1 | 27 | 2 |
| 370/158 | 6 | 1 | 39 | 3 |
| 370/168 | 1 | – | 4 | – |
| 3031 | 5 | – | 20 | 1 |
| 3032 | – | – | 1 | – |
| 4331 | – | – | 38 | 3 |
| TOTAL | 800 | 100% | 1,337 | 100% |

SOURCE: COMPUTER INTELLIGENCE COMPANY

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- Sixty-four percent of the 4341s are replacing the mainframes listed above.

- If 60% of the 11,000 IBM 4300 systems now on order and considered "firm," are shipped to replace the above systems, obviously they will replace over two-thirds of those systems now installed.

    - The heavy impact of the 4300 on the mid-range of the 360/370 families is clear.

IV USER RECEPTIVITY TO THIRD-PARTY
MAINTENANCE ON THE IBM 4300

# IV USER RECEPTIVITY TO THIRD-PARTY MAINTENANCE ON THE IBM 4300

## A. INTERVIEW OVERVIEW

- The prime target of interviews for this study was those EDP managers who had installed an IBM 4300 and, therefore, had real 4300 experience to report; secondarily, users were sought who were reasonably likely to have an opinion regarding third-party maintenance.

    - Only users who were thought to have purchased 4300s or 4300s on third-party lease were called. Many were found to have IBM leases and, therefore, were committed to IBM maintenance.

    - After rejecting many users who had IBM leases, a total of five were interviewed because:

        . They were very ready to describe their IBM maintenance experience.

        . They actually represent two-thirds of the total potential.

        . Some indicated a willingness to change from IBM lease arrangements and become third-party maintenance prospects.

- Two users of the remaining interviews had third-party leases, and 13 had purchased 4300 systems.

## B. OVERALL RESPONDENT PROFILE

- A summary of interview results is shown on Exhibit IV-1.

    - Of the 20 interviewees, 15 had 4331s installed, 5 had 4341s.

    - Seven had replaced IBM 370s, six had replaced IBM 360s, three were new installations, two had replaced S/3s and two had replaced non-IBM mainframes (Burroughs and Xerox).

    - Three respondents intended to keep their old mainframe, meaning 15 did not.

    - Maintenance coverage varied as follows:

        . 24 hours - 7 responses.

        . 16-20 hours - 3 responses.

        . 8-10 hours - 10 responses.

        . The 24 hour coverage was typically 7 days (one respondent had 6 days); other coverage was 5 days with one respondent at 6 days.

- The significance of the software maintenace charges, which were a key part of the 4300 announcement, are evident from the amount being paid by respondents.

    - Two respondents expect to pay over $1,000 per month.

# EXHIBIT IV-1

## SUMMARY OF RESULTS OF INTERVIEWS OF IBM 4300 USERS
## PURCHASE/THIRD-PARTY LEASE

| SITE DATA/SITE NO. | PURCHASE/THIRD-PARTY LEASE | | | | | | | | | | | | | | | IBM LEASE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| NO./4300s | 4341 | 4341 | 4341 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4331 | 4341 | 4341 | 4341 | 4341 | 4331 |
| SYSTEM REPLACED | 370/138 | 370/135 | 370/148 | 360/30 DEC 10 | 360 | Service Bureau | 370/115 | 360/30 | 360/40 | 370/125 | 3/15 | NONE | 3/150 | 360/30 | NONE | 370/138 | B1700 | 370/25 | 360 | Xerox Series I |
| CENTRAL/REMOTE | C | C | C | C | C | C | C | C | C | C | C | C/R | C | C | C | C | C | C | C | C |
| KEEP OLD SYSTEM? | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | NO | N/A | NO | For Now | YES | NO | NO | NO | NO | YES |
| CONTRACT TERMS: (HOURS/DAYS) | 24 Hr. 7 Day | 24 Hr. 7 Day | 24 Hr. 7 Day | 8 Hr. 5 Day | 24 Hr. 7 Day | 9 Hr. 5 Day | 9 Hr. 5 Day | 9 Hr. 5 Day | 16 Hr. 5 Day | 20 Hr. 5 Day | 8 Hr. 5 Day | 24 Hr. 7 Day | 16 Hr. 5 Day | 9 Hr. 5 Day | 9 Hr. 5 Day | 24 Hr. 6 Day | 24 Hr. 5 Day | 8 Hr. 5 Day | 8 Hr. 5 Day | 10 Hr. 6 Day |
| PAYMENT – HARDWARE ($/MO.) | +500 | N/A | 500 | N/A | N/A | N/A | N/A | 250 | N/A | N/A | N/A | N/A | N/A | 300 | 200 | — | — | — | — | — |
| – SOFTWARE ($/MO.) | N/A | N/A | 500 | 1,100 | 300-400 | 200 | 200 | 350 | N/A | N/A | N/A | N/A | 0 | 580 | 2,000 | — | — | — | — | — |
| I/O CARRYOVER (NEW, OLD, MIXED) | OLD | MIX | MIX | MIX | MIX | NEW | MIX | MIX | MIX | MIX | MIX | NEW | NEW | MIX | NEW | MIX | NEW | MIX | NEW | MIX |
| SATISFACTION WITH IBM's OVERALL PERFORMANCE (6=Very Satisfied; 1=Unsatisfied) | 5 | 3 | 5 | 5 | N/A | 3.5 | 3 | 5 | 5 | 5 | 4 | 3 | 4 | 3.5 | 4 | 5 | 5 | 4 | 4 | 4 |
| USED THIRD-PARTY? | NO | YES | NO | NO | YES | NO | NO | YES | YES | YES | NO | NO | NO | NO | NO | NO | NO | NO | YES | NO |
| WOULD CONSIDER? | NO | YES | YES | YES | YES | NO | NO | NO | YES | NO | YES | YES | YES | YES | NO | NO | NO | YES | YES | YES |
| FOR PERIPHERALS ONLY? | NO | NO | YES | NO | YES | NO | YES | NO | NO | NO | NO | YES | NO | YES | NO | NO | NO | NO | YES | NO |
| PRICE LEVEL DISCOUNT? –EQUAL PERFORM. | N/A | 10% | N/A | 20% | +20% | 30-40% | 20% | N/A | N/A | N/A | 25% | 10% | 10% | 10% | 25-30% | N/A | 20% | N/A | 10-15% | 25% |
| –20% BETTER | N/A | 5-10% | N/A | 10% | +20% | 25% | 0 | N/A | N/A | N/A | 25% | 0 | 0 | 10% | 0 | N/A | 20% | N/A | 10% | 10% |
| –20% INFERIOR | N/A | NO | N/A | 30% | NO | FREE | 50% | N/A | N/A | N/A | NO | 40% | 20% | NO | 100% | N/A | 30% | N/A | 35% | NO |

N/A = NO RESPONSE, DATA NOT AVAILABLE

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- Among those others responding, expected payments for software maintenance were equal to or exceeded hardware payments.

• On the question of carryover of I/0 from the old CPU to the incoming 4300, only one respondent planned to use the old I/O exclusively.

  - Thirteen planned a mix of old and new I/O.

  - Five planned new I/O.

• Satisfaction with IBM maintenance performance is good overall, users gave an average rating of 4.2 with 5=very satisfied and 1=unsatisfied.

• User reaction was varied in regard to third-party maintenance.

  - Six respondents had used TPM.

  - Twelve would consider using TPM.

  - Only six would consider TPM on perherials only. Interestingly, four of these six had not used TPM before and, perhaps, were not adverse to try splitting maintenance between mainframes and peripherals.

• The price sensitivity regarding TPM closely follows results of other INPUT surveys.

  - For equal performance: 13 users expected a 10-40% discount with a majority in the 10-20% range.

  - For improved performance: the discount required by nine respondents was reduced in several cases to 0%; this indicates a willingness to switch to TPM purely on the basis of improved performance.

- Seven respondents indicated a willingness to consider inferior performance at a larger discount, ranging from 20% to "free."

- Clearly, the majority of the users are most likely to respond to equal maintenance at a 10-30% discount, as compared to either superior maintenance at a premium, or inferior maintenance at a larger discount.

- Peripherals on the 4300 systems were predominantly IBM, as shown on Exhibit IV-2. The equipment in the "other" category on this exhibit was primarily CRT terminals. Respondent comments regarding I/O equipment carryover follow:

    - "All of it is carried over from 370."

    - "All equipment except the Documation printer was carried over from the 370s."

    - "Only disk drives (3370s) are new with the 4300. Rest of equipment was on 370."

    - "Printer, card reader from 360, all else new."

    - "Printer from 360, 1419, card reader from 360." (3287, 3278s new.)

    - "All equipment acquired with 4331."

    - "Disks and tape same as 370, all else is new."

    - "One printer is carried over (1403 N-1) from 360s - all other equipment installed with 4331 installation."

    - "The tape drives are remaining from the 360; disk drives and printer new with 4331."

EXHIBIT IV-2

PERIPHERALS INSTALLED WITH RESPONDENT IBM 4300 SYSTEMS

| PERIPHERAL DATA / SITE NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12* | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INSTALLATION DATE | 7/80 | 5/80 | 4/80 | 10/79 | 7/80 | 12/79 | 12/79 | 3/80 | 10/79 | 10/79 | 5/80 | 12/79 7/80 | 2/80 | 10/79 | 11/79 | 6/80 | 12/79 | 2/80 | 3/80 | 12/79 5/80 |
| MEMORY SIZE | 2M | 2M | 2M | 1M | 1M | 1M | 1M | 1M | 1M | 1M | 1M | 2M | 1M | 1M | 1M | 2M | 2M | 1M | 1M | 2M** |
| DISK DRIVES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| • NUMBER | 2 | 27 | 3 | 3 | 1 | 4 | 4 | 4 | 8 | 8 | 3 | 9 | 3 | 4 | 6 | 5 | 4 | 10 | 2 | 6 |
| • VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | MEM-OREX | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM |
| • MAINTENANCE VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | " | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM |
| TAPE DRIVES |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| • NUMBER | 4 | 10 | 3 | 2 | 4 | 2 | 1 | 4 | 5 | 1 | 1 | 4 | 1 | 5 | 2 | 6 | 3 | 5 | 2 | 3 |
| • VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | CAL-COMP | IBM | IBM | IBM | IBM | IBM | STC | IBM | IBM | IBM | IBM | IBM |
| • MAINTENANCE VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | " | IBM | IBM | IBM | IBM | IBM | STC | IBM | IBM | IBM | IBM | IBM |
| PRINTERS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| • NUMBER | 1 | 1 (Documentation) | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| • VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM |
| • MAINTENANCE VENDOR | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM | IBM |
| OTHER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| • NUMBER | 62 | – | 2 | 4 | 5 IBM / 34 Bunker Ramo | 1 | 4 | – | – | – | 3 | – | – | 4 | 20 | 50 | 27 | 6 | 6 | – |
| • VENDOR | – | – | IBM | IBM | IBM / Bunker Ramo | IBM | IBM | – | – | – | IBM | – | – | IBM | IBM | IBM | – | IBM | IBM | – |
| • MAINTENANCE VENDOR | IBM | – | IBM | IBM | IBM | IBM | IBM | – | – | – | IBM | – | – | IBM | IBM | IBM | – | IBM | IBM | – |

* 2 - 4331s
** COMBINED TOTAL FOR BOTH MACHINES

INPUT

- "One disk drive and tape drive and card reader are carry over from 370 system. Rest of equipment acquired with 4331."

- "8809 from System 3."

- "All equipment acquired when 4331s installed."

- "New with 4331 - all used purchased equipment."

- "Reader punch, tapes, printer, all carried over from 360."

- "All IBM new with 4300."

- "Printer new, one 3340 new, all else we had before 4341 was installed."

- "None - all new with 4341 - had Burroughs previously."

- "Two 3340 disks and two 3420 Tapes from 370, all others new."

- "All new for 4331 except CRTs."

- "Tape drives from 370/125 we used to have installed."

- Respondents' comments, with regard to plans for I/O on the 4300 systems, were the following:

  - "Have 3370, 3375 disks on order; to be installed in 1981-1982."

  - "By the end of this year we hope to install 3375 disks. Hope to reduce tape usage, emphasize disk storage."

  - "Satisfied with this configuration at least for a couple of years."

- "3203-5 will replace old printer. Three 3310s on order, two 3370s on order."

- "Yes - probably additional I/O. ATMS - 3624, 3604 Series - about 36 terminals, five controllers, one 3624."

- (Renting tapes and disks now.) "September 1980: Replace two 3340s, with two 3344s. Replace 3410s - too slow, want on-line processing, with six 3420s. Running VS-1 now."

- "Disk drives - may use 3370s or 3310s in place of 3340s."

- "Surprisingly, home office is de-emphasizing use of it, shifting more to on-line environment with home office. Will not be adding I/O equipment."

- "No immediate new plans - the 3370s were just installed."

- "Have two 3370 disk drives on order to add to present system."

- "3262 printers - two on order. Would consider additional I/Os as we grow."

- "Have plans to add six 3344s at Denver location before October 1980."

- "Will probably add one set of disk drives (3310) by end of the year."

- "Our plans are defined as "conversion" from 1980 through April 1981. No updates or purchases of more I/O equipment, may even reduce tapes/CRTs."

- "Probably get another whole 4341 within another year or so and whatever equipment is hooked up to it."

- "Nothing in tapes. May get 3350s interim to 3375s on order, but not due until mid-1981. 3344s stay with them until replacement 3375s arrive. Add several CRTs, printers, add 2 mg memory October this year."

- "At this point, no change anticipated."

- "With 4341 - add three 3370s, 1 x 4 - 3420-6 tapes, add 3262 printer, add 370S controller by August 1981, 30-36 3278s on line."

- "Will be installing two 3370 disk drives next month to replace 3310."

- "None - still deciding whether to purchase or lease - whatever is more cost effective."

- When considering switching I/O vendors, 15 plan to stay with IBM although several are open to change. Exceptional comments were:

  - "Went with the Documation printer because it is cheaper, faster, more efficient than IBM printers."

  - "No plans to switch, it depends what comes on to the marketplace of course."

  - "Raytheon CRTs possibly - hard to justify spending more money for another company's product when our company offers it too." (This respondent is a subsidiary of Raytheon!)

  - "Would consider non-IBM for tapes, but not disk drives or printer. Have Calcomp now."

  - "Have Memorex drives - very pleased."

  - "May acquire new higher capacity tape drives - no particular vendor in mind."

## C.   RESPONDENT SATISFACTION WITH IBM MAINTENANCE

- A major objective of the interviews was to get a reading on how satisfied users were with IBM maintenance on the 4300. The questionnaire approached this in four ways:

  - The respondent's overall satisfaction.

  - A comparison of what was promised versus what was delivered.

  - A comparison of IBM maintenance before the 4330.

  - A rating of the importance of on-site FEs.

- Generally, respondents are sataisfied with IBM maintenance on the 4300s, as shown on Exhibit IV-3.

  - The negative comments (rating of "1") had to do with the remote support center concept ("The CE tried to hook up to it, but it wouldn't work properly. They are still trying to figure it out.") and coverage of remote sites ("At Denver, no one seemed interested in how the installation was coming. We had to call some IBM VPs to get things done").

  - Several respondents commented on the need for IBM to train people on the 4300:

    . "I believe the remote support center concept is a very good one. It will take 1-1½ years to realize the full potential as the staff gets educated. I see many long-term benefits."

## EXHIBIT IV-3

## INDIVIDUAL RESPONDENT SATISFACTION LEVELS REGARDING IBM MAINTENANCE

| SATISFACTION CATEGORY / SITE NO. | RATING BY INDIVIDUAL RESPONDENTS | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1) OVERALL SATISFACTION WITH 4300 MAINTENANCE | N/A | 3 | 5 | 5 | N/A | 3 | 3 | 5 | 5 | 5 | 4 | 3 | 4 | 3.5 | 4 | 5 | 5 | 4 | 4 | 4 |
| 2) SATISFACTION WITH REMOTE SUPPORT CENTER CONCEPT | N/A | N/A | 5 | N/A | N/A | 5 | N/A | N/A | 1 | N/A | N/A | 4 | N/A | 5 | N/A | N/A | 3 | N/A | 5 | N/A |
| 3) SATISFACTION WITH CENTRAL SITE MAINTEN-ANCE | N/A | 3 | 5 | 5 | N/A | N/A | 3 | 5 | 5 | 5 | 4 | 5 | N/A | 3.5 | 4 | 5 | 5 | 4 | N/A | 4 |
| 4) SATISFACTION WITH REMOTE SITE(S) MAINTEN-ANCE | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

N/A = NO RESPONSE - NO DATA AVAILABLE
RATING: 5 = VERY SATISFIED, 3 = MEDIUM SATISFACTION, 1 = UNSATISFIED

INPUT

- "We had a real good FE with the 370. He was promoted. IBM is very responsive to meeting the terms of our contract but the new FE has no training on 4300 equipment. IBM said we would have educated technical FEs from day one of installation but this was not the case."

- "This is a reliable machine. IBM's service response is good, and although they have a "green" crew, they perform well."

- "There are training limitations. FEs need better education on the 4300s."

- "Learning curve on the FEs is poor now."

- "CE wasn't trained well."

- Reaction to the support center concept was mixed, with most users having no comment.

    - Two users were positive about the software support center, one was negative, ("Not good response ... they often put us on hold and forget about us").

    - With regard to the hardware support centers, the few comments were:

        - "Very satisfied ... took care of a printer problem quickly."

        - "Great."

        - Most respondents had "no experience yet."

- Average respondent satisfaction levels are give on Exhibit IV-4.

EXHIBIT IV-4

AVERAGE RESPONDENT SATISFACTION LEVELS REGARDING

IBM MAINTENANCE

| SATISFACTION CATEGORY | PURCHASE OR THIRD-PARTY LEASE | PURCHASE OR THIRD-PARTY LEASE | IBM LEASE | AVERAGE IBM | COMBINED NUMBER | AVERAGE COMBINED |
|---|---|---|---|---|---|---|
| OVERALL SATISFACTION WITH 4300 MAIN-TENANCE | 13 | 4.0 | 5 | 4.4 | 18 | 4.1 |
| SATISFACTION WITH REMOTE SUPPORT CENTER CONCEPT | 5 | 4.0 | 2 | 4.0 | 7 | 4.0 |
| SATISFACTION WITH CENTRAL SITE MAINTENANCE | 11 | 4.3 | 4 | 4.5 | 15 | 4.36 |
| SATISFACTION WITH WITH REMOTE SITE(s) MAINTENANCE | 1 | 1 | 0 | N/A | 1 | 1 |

N/A = NO RESPONSE; DATA NOT AVAILABLE

INPUT

- Those users on IBM lease show a somewhat higher level of satisfaction than those users with purchased systems, or third-party lease.

- This exhibit also highlights the relatively low response to questions about remote support centers - it's too early to draw on a broad experiene base because user opinions aren't formed yet.

● Respondents were divided as to whether or not 4300 maintenance differed from 320/303X maintenance.

- Of users with purchased machines or third party leases, five mentioned a difference and six thought it was the same.

- Of users with IBM leases, three mentioned a difference and two thought it was the same.

- Typical comments were:

  . "No - we have been very fortunate with our 370/138 - CPU was down only once in three years. Cannot complain about maintenance."

  . "The maintenance is better, but only because our shop has the first 4341 installed for financial industry use in the Chicago area. IBM wants to set a good example for other future potential customers."

  . "No-equal."

  . "Much better now - more reliability of machine."

  . "Don't really know - no experience yet."

- "Not many problems with the 370. Hope to achieve more reliability with 4331."

- "Can only compare it to 360 maintenance - no difference."

- "Yes, it's a lot better. Have IBM maintenance now. Had Forbes on 360. The quality and caliber of people is much better at IBM."

- "No, equally good both ways."

- "Equally as good as System 3 maintenance."

- "GSD better than the small shop service we get now. Spread of FEs thinner now." (Was a S/3 installation.)

- "Possibly improved maintenance from 360 because of support center concept."

- "Different division - DP maintenance rather than GSD. Same service."

- "Same people on our account as previously. Good personnel. 4341 will be more reliable equipment. Had a lot of failures with 370, unhappy with it. Remote diagnostics will help. Two years to debut it. Lost 6-8 hours a month on it."

- "Only need two hours/month maintenance on 4341. Needed four hours/week on the Burroughs."

- PM schedules on other equipment, miss that with 4300 equipement."

- "There is no difference in quality of service. These machines don't have maintenance problems like the 370/125 we had."

• On the question of on-site FEs, only one respondent had an on-site FE. This site retained him after installation of the 4300. The user stated "It is very important as long as he has been properly trained. We have three mainframes right now so it is important to us to have one."

• When rating the importance of an on-site FE, with 5=very important and 1=not important, the ratings were:

- One respondent rated "5."

- Two respondents rated "4."

- Three respondents rated "2."

- Twelve respondents rated "1."

- Typical comments were:

  • "Not very important with the new technology, XX44 disks, electronic processing is becoming very reliable. I believe it will even get better in the next 4-5 years."

  • "Very important as long as he has been properly trained. We have three mainframes right now so it is important to us to have one."

  • "Relatively unimportant since their response time when we call has been so good."

  • "Don't think it is necessary. Reliable equipment. We get good service now."

- "Availability of support good."

- "Reliable machine."

- "Because of major breaking-in problems. Not unusual for system to go down several times a week."

- "Little items often are overshadowed by problems with other equipment. If we had an on-site FE, these things would be looked after."

- "Not important to us because the machine is so reliable." (A typical comment.)

- "Not important - have had good reliability with our mainframes. I guess we are unusual in that regard."

- "Too expensive."

- "Support center satisfies our needs."

- "Small shop."

- "Too small a company."

- "No problems with this equipment, don't need it."

- "Reliability. Pain to have those IBM people around. Would prefer not to have them. They end up wasting our time asking a lot of questions."

- "Not that important to us because of the reliability of the equipment."

- "Less important, in Dallas there is good response time so no real need for on-site."

- "Had one during the planning/installation of the 4331 only and it didn't work. He, the FE, was put in as a learning situation for him rather than as a problem reconciliation for us. We both were learning about the 4331 together. I wasn't pleased at all about this. The process of tailoring the system to our needs as a "hit and miss" process on his part."

- "Don't require an on-site FE with this equipment." (This site had an on-site FE with the previous 370 equipment.)

## D.    RESPONDENT SATISFACTION WITH 4300 PERFORMANCE

- As shown on Exhibit IV-5, resondents are generally getting the performance they expected on their 4300s.

  - Although expectations are mostly being met, the wide difference in expectations is notable.

  - IBM is not the prime source of the expectations, because most respondents said, "IBM makes no promises." The following quotes are from those respondents who felt IBM had made some promises:

  - "No specifics promised but IBM did say we would be taken care of like never before."

  - "Said we would get better service due to the improved equipment. I do believe that."

# EXHIBIT IV-5

## RESPONDENT SATISFACTION WITH 4300 PERFORMANCE

| 4300 PERFORMANCE / SITE NO. CRITERIA | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RESPONSE TIME** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | 2 Hr. | N/A | <1 Hr. | 15 Min. | 30 Min. | 1-2 Hr. | 10 Min. | 15 Min. | 30 Min. | <2 Hrs. | <1 Hr. | <24 hr. | <2 Hr. | 20 Min. | 1-2 Hr. | 2 Hr. | <1 Hr. | <1 Hr. | <3 Hrs. | <3 Hrs. |
| • WHAT YOU GET | N/A | N/A | 1 Hr. | 15 Min. | ? | 1-2 Hr. | 3 Hrs. | 15 Min. | <30 mi | <2 Hrs | N/A | <24hr. | 2 Hr. | <1 Hr. | 1-2 Hr. | N/A | <2 Hr. | 1½-2hr | 3 Hrs. | 3 Hrs. |
| • RATING | 5 | 3 | 4 | 5 | 5 | 4 | 5 | 4 | 4 | 4 | 5 | 5 | 5 | 3 | 4 | 5 | 4 | 5 | 4 | 4 |
| **REPAIR TIME** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | 2 Hr. | 1 Hr. | N/A | <1 Hr. | 1-2 hr. | 30 min-2-3 hr. | 1 hr. | N/A | N/A | 4 hr. | <2 hr. | <2 hr. | 1-2 hr. | N/A | 2 hr. | 1½ hr. | 3 hrs. | 30 min. -2 hr. | 1 hr. | 30 min. |
| • WHAT YOU GET | N/A | 1 hr. | N/A | N/A | N/A | 2-3 hr. | 1 hr. | 30 min-1-1½hr. | N/A | 4 hr. | N/A | <2 hr. | 1-2 hr. | N/A | 2 hr. | 1½ hr. | <3 hr. | same | 1 hr. | 30 min. |
| • RATING | 5 | 4 | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 5 | 4 | 4 | 5 | 3 | 4 | 5 | 5 | 5 | 5 | 4 |
| **MT BETWEEN FAILURES** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | ? | 3 wk. | ? | 5 mo. | 2 mo. | ? | 2 wk. | 2-3 mo. | N/A | 2½ mo. | NONE | NONE 3 mo. | NO DOWN TIME | 6 wk. | 1 mo. | N/A | 2 mo. | 3 mo. | 2 mo. | N/A |
| • WHAT YOU GET | ? | 3 wk. | ? | 5 mo. | N/A | 1 mo. | 7 days | 2-3 mo. | N/A | 2½ mo. | NONE | NONE | 2 days | 2 wk. | 1 mo. | N/A | 3 wk. | 3 mo. | 2 mo. | N/A |
| • RATING | 5 | 5 | 5 | 2 | 3 | 4 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 2.5 | 3 | 4 | 4 | 4 | 4 |
| **Amount of maintenance required compared to machine replaced** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | 0 | -90% | 0 | -50% | -100% | N/A | 0 | N/A | N/A | 0 | N/A | N/A | LESS | N/A | N/A | -50% | N/A | -80-90% | -40% | -25% |
| • WHAT YOU GET | ? | -90% | 0 | -50% | -100% | N/A | +75% | -2,000% | -90% | 0 | N/A | N/A | +25% | N/A | N/A | -100% | N/A | -80-90% | -40% | 0 |
| • RATING | 5 | 5 | 4 | 2 | 5 | N/A | 3 | 5 | 5 | 1 | 4 | N/A | 4 | 4 | 4 | 4 | 3 | 5 | 2 | 2 |
| **Price/performance compared to machine replaced** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | 317% | ? | <100% | ? | N/A | N/A | N/A | N/A | N/A | 40% | 30-40% | N/A | N/A | N/A | N/A | -100% | +1,000% | N/A | N/A | N/A |
| • WHAT YOU GET | 20-400% | ? | 100% | ? | N/A | N/A | N/A | +4,000% | N/A | 40% | 30-40% | N/A | N/A | +100% | N/A | +250% | ” | N/A | N/A | N/A |
| • RATING | 5 | ? | 4 | 4 | 2 | N/A | 2 | 4 | 5 | 4 | 3 | N/A | 5 | 4.5 | 5 | 5 | 5 | 4 | 2 | 4 |
| **INSTALLATION EXPERIENCE** | | | | | | | | | | | | | | | | | | | | |
| • EXPECTED | 4 Hr. | +3 days | Weekend | 2 days | 5 Hrs. | 10 days | 1 wk. | 1 wk. | 1 wk. | +24 hr. | 2 days | 5 days | 2 wk. | 2 days | 1 mo. | 1 day | 2 days | 2 days | 7-10 days | 2 days |
| • WHAT YOU GET | 4 Hr. | 3 Hr. | ” | 2 days | 5 Hrs. | 10 days | 72 hrs. | 15 hrs. | 1 wk. | <24 hr. | 2 days | 5-8 days | 2 wk. | 2 days | 3 mo. | weekend | 2 days | 2 days | ” | 2 days |
| • RATING | 5 | 4 | 3 | 5 | 2 | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 2 | 4 | 3 | 4 | 3 | 4 |

N/A = NO RESPONSE; NO DATA AVAILABLE
RATING: 5 = VERY IMPORTANT; 1 = NOT IMPORTANT

- "We got good service from IBM because we were an early installation of 4341 in this area."

- "Hinted at 72-hour installation time."

● Average satisfaction levels are given on Exhibit IV-6.

- Those on IBM lease have higher average expectations.

- Repair and response times are rated most important.

## E. APPLICATIONS ON THE INSTALLED 4300s

● The majority of applications on the newly installed 4300s were transferred from previous machines as shown on Exhibit IV-7.

- The transferred applications tend to be the traditional ones.

- The new applications tend to be more industry-specialized, indicating that some 4300s are becoming "applications machines" rather than general purpose.

● As shown on Exhibit IV-6, the respondents with IBM leases have a higher proportion of both transferred and new applications. This may be a contributing reason to their decision to lease from IBM - they feel a need for a close IBM tie to help in their applications development.

EXHIBIT IV-6

AVERAGE RESPONDENT SATISFACTION WITH IBM 4300 PERFORMANCE

| 4300 PERFORMANCE CRITERIA | PURCHASE/THIRD-PARTY LEASE | | IBM LEASE | | COMBINED | |
|---|---|---|---|---|---|---|
| | NUMBER OF RESPONSES | AVERAGE | NUMBER OF RESPONSES | AVERAGE | NUMBER OF RESPONSES | AVERAGE |
| **RESPONSE TIME** | | | | | | |
| • EXPECTED | 14 | 2.6 | 5 | 1.6 | 19 | 2.3 |
| • WHAT YOU GET | 11 | 3.4 | 4 | 2.4 | 15 | 3.1 |
| • RATING | 15 | 4.3 | 5 | 4.4 | 20 | 4.3 |
| **REPAIR TIME** | | | | | | |
| • EXPECTED | 11 | 1.75 | 5 | 1.45 | 16 | 1.65 |
| • WHAT YOU GET | 8 | 1.75 | 5 | 1.35 | 13 | 1.59 |
| • RATING | 15 | 4.3 | 5 | 4.8 | 20 | 4.45 |
| **MT BETWEEN FAILURES** | | | | | | |
| • EXPECTED | 9 | 2.08 mo. | 3 | 2.3 mo. | 12 | 2.14 mo. |
| • WHAT YOU GET | 9 | 1.5 mo. | 3 | 1.91 mo. | 12 | 1.6 mo. |
| • RATING | 15 | 4.23 | 5 | 3.8 | 20 | 4.12 |
| **PERCENT MAINTENANCE** | | | | | | |
| • EXPECTED | 7 | -34.2% | 5 | -40% | 12 | -36% |
| • WHAT YOU GET | 8 | -30/248 | 5 | -40 | 12 | 3.79 |
| • RATING | 13 | 3.9 | 5 | 3.2 | 18 | 3.72 |
| **PRICE/PERFORMANCE** | | | | | | |
| • EXPECTED | 4 | 123% | 2 | 550 | 6 | 265.3 |
| • WHAT YOU GET | 6 | 746 | 2 | 625 | 8 | 716 |
| • RATING | 12 | 3.95 | 5 | 4 | 17 | 3.97 |
| **INSTALLATION** | | | | | | |
| • EXPECTED | 15 | 5.55 | 5 | 3.1 | 20 | 4.93 |
| • WHAT YOU GET | 15 | 9.6 days | 5 | 3.3 | 20 | 8.0 |
| • RATING | 15 | 2.93 | 5 | 3.6 | 20 | 3.6 |

RATING: 5 = VERY IMPORTANT; 1 = NOT IMPORTANT

EXHIBIT IV-7

APPLICATIONS ON RESPONDENT IBM 4300 SYSTEMS

| APPLICATIONS | ACQUISITION BASIS | |
|---|---|---|
| | PURCHASED/ THIRD LEASE | IBM LEASE |
| **TRANSFERRED APPLICATIONS** | | |
| ● ACCOUNTING | 8 | 5 |
| ● INVENTORY | 2 | 2 |
| ● MARKETING | 1 | 1 |
| ● MANUFACTURING SYSTEM | – | 2 |
| ● BILLING | 2 | – |
| ● FINANCIAL PROCESSING | 4 | – |
| ● BATCH APPLICATIONS | 1 | – |
| ● INSURANCE | 1 | – |
| ● SERVICE BUREAU | – | – |
| **TOTAL** | 19 | 10 |
| **NEW APPLICATIONS** | | |
| ● MODELING | 1 | – |
| ● SCIENTIFIC | – | 2 |
| ● INVENTORY MANAGEMENT | – | 1 |
| ● POINT-OF-SALE | 1 | – |
| ● BILLING | – | 1 |
| ● CENTRAL DISPATCH | – | 1 |
| ● ON-LINE APPLICATIONS | 1 | – |
| ● PENSION/PROFIT SHARING | 1 | – |
| ● TRUST ACCOUNTING | 1 | – |
| ● BUSINESS APPLICATIONS | 1 | – |
| ● MARKETING SUPPORT | 1 | – |
| ● ON-LINE CLAIMS (INSURANCE) | – | – |
| ● ACCOUNTING | 1 | – |
| **NUMBER OF SETS** | 15 | 5 |

## F.    FIVE-YEAR PLANS OF RESPONDING 4300 INSTALLATIONS

● Respondents had these comments relative to five-year plans for their 4300 installation:

- "Have 4341 on order for installation in 1981. Don't really know if we will accept delivery or not . . . it depends on the economy and business. Right now we are running well with what we have Microdatas were giving us trouble in the past but now they seem to be ok - we won't worry about replacing them unless they aren't performing. Microdata does its own maintenance, would give them a "3" on a scale of 1 to 5."

- "Will have two 4341s by 1981 - no plans beyond this."

- "Plan on staying with present configuration for awhile."

- "No new CPUs unless we go DDP - Texas has non-branching laws." (Is a bank.)

- "1981 - 4341 - Engineering applications."

- "Not in next five years. Have only one location."

- "Unfortunately home office is de-emphasizing this equipment in favor of on-line capability to headquarters DP in Los Angeles."

- "Have a 4341 on order for 1981, whether or not we will take delivery has not been decided. As of today the 4331 is satisfying all our needs."

- "None that I know of."

- "By December 1981 installed one 4341 in Denver, one 4341 in St. Louis. Hope installation goes better in Denver than last time around."

INPUT

-       "Will have 75 pieces of gear from System 3 on this system.  Automated Teller; CRTs, teller stations units (among a total of five branches)."

-       "In addition - 4341 to be installed within next 1-1½ years.

-       "HP 3000 - at three remote sites with online CRTs.  Looking at 1982 before adding or upgrading.  Possibly will upgrade 4341, add a 4331 or add a 4341 - depends on our growth."

-       "No plans for additional 4300s.  Have/will have remote terminals in all branches (8) by next year (September 1981).  One branch has a PDP system that does some preliminary processing."

-       "Yes, add Series 1 at plants possibly within five years.  Have 13 remote plants, Series 1 could communicate to central location."

-       On balance, the sites either plan to have little growth, or to grow by adding communications capability.

APPENDIX A: QUESTIONNAIRE

## USER ATTITUDES REGARDING 4300 MAINTENANCE

● The primary objective of this study is to evaluate the user level of satisfaction with the field service being provided by IBM on their 4300 series of computers.

1. a) Is the following information correct regarding installed/on order 4300's? (Verify Computer Intelligence Data)

|  | Model Number | Installed or On Order | Acquisition Method |
|---|---|---|---|
| Number of 4300 Systems | _____ | _____ | _____ |
| System(s) being replaced | _____ | _____ | _____ |

Location of 4300 systems (if other than central site) _____

_____

Location of systems being replaced (if other than central site) _____

_____

Do you intend to keep any of the systems being replaced by 4300's?

Explain: _____

_____

b) What are the terms of the maintenance contract you have (or intend to have) on the 4300(s)? _____

_____

c) How much do you pay monthly (or expect to pay):

For hardware (mainframe) $_____/month

For software (per 4300 system) $_____/month

2. For each 4300 system installed and/or on order, please describe the I/O equipment.

|  | 43 __ __ | 43 __ __ | 43 __ __ |
|---|---|---|---|
| Installation Date |  |  |  |
| Memory Size |  |  |  |
| Disk Drives<br>. Number<br>. Vendor<br>. Maintenance Vendor |  |  |  |
| Tape Drives<br>. Number<br>. Vendor<br>. Maintenance Vendor |  |  |  |
| Printers<br>. Number<br>. Vendor<br>. Maintenance Vendor |  |  |  |
| Other<br>. Number<br>. Vendor<br>. Maintenance Vendor |  |  |  |

INPU

3. Is the I/O equipment a carryover from the replaced system or is it new with the 4300 System?  Explain _____

_____

_____

What are your plans regarding the I/O on the 4300 system(s) regarding replacement and growth? (NOTE:  particular attention should be paid to tape and disk plans).

_____

_____

_____

If you plan to switch I/O vendors, or have switched, who are the new vendors?

_____

_____

4. A. Please rate the following regarding your satisfaction with maintenance on the 4300.  (Rating:  5 = very satisfied, 3 = medium, 1 = unsatisfied)

Maintenance Vendor: _____

|  | | Rating | Remarks |
|---|---|---|---|
| 1) | Overall satisfaction with 4300 maintenance | _____ | _____ |
| 2) | Satisfaction with remote support center concept | _____ | _____ |
| 3) | Satisfaction with central site maintenance | _____ | _____ |
| 4) | Satisfaction with remote site(s) maintenance | _____ | _____ |

INPUT

- 39 -

4.  B.  Is 4300 maintenance different from 370/303X maintenance?

    _____

    _____

5.  Did you have an on-site FE from IBM before the 4300 installation?

    _____

    Did he remain after installation of the 4300(s)?

    _____

    How important to you is an on-site FE?  (5 = very important, 1 = not
    important)

    Rating: _____

    Comments: _____

    _____

    _____

    _____

INPU

6. With regard to 4300 performance, please provide the following:

| | What IBM has Promised | What you Expected | What you are Getting | Relative Importance (5=very 1=not imp.) |
|---|---|---|---|---|
| a) Mean time to respond (In-person arrival of service person measured in hours after call is placed) | | | | |
| b) Mean time to repair (Of equipment, after service person arrives on-site) | | | | |
| c) Mean time between failure | | | | |
| d) Amount of maintenance required compared to machine replaced | | | | |
| e) Price/performance compared to machine replaced | | | | |
| f) Installation experience. How well did it go, or do you expect it to go? (How long did it take?) | | | | |

INPUT

7. How much extra would you pay for improvements in maintenance to an "ideal" level?

|  | Ideal Level | Premium would Pay over IBM Current Rates as a Percent of Current Rate |
|---|---|---|
| Mean Time to Respond | hrs. | |
| Mean Time To Repair | hrs. | |
| FE On-Site | hrs. per day | |

8. a) Have you ever used third party maintenance? _____

   If "No", why? _____

   b) Would you consider non-IBM maintenance for the 4300?

   Explain: _____

   _____

   _____

   At what price level would you consider non-IBM maintenance (Third party maintenance)?

   |  | Amount of Discount - % |
   |---|---|
   | 1) Performance equal to IBM | _____ |
   | 2) Performance 20% better * than IBM | _____ |
   | 3) Performance 20% inferior* to IBM | _____ |

   \* in terms of MT to R&R

   c) Would you consider non-vendor maintenance on the peripherals only?

   _____

INPUT

9. What are the applications which involve the 4300?

    a)  Applications transferred from the replaced machine:

    Application          Central Site or Distributed

    _____    _____

    _____    _____

    _____    _____

    b)  New applications designed for the 4300:

    Application          Central Site or Distributed

    _____    _____

    _____    _____

    _____    _____

10. Please describe the plans you have for 4300 installations over the next one – five years.

    _____

    _____

    _____

    _____

    _____


THANK YOU VERY MUCH!

INPUT